higher cost. During the last few years Fabry-Perot (FP) etalon based filters have been used in solar astronomy in order to overcome some of these difficulties. In particular, the use of Lithium Niobate (LiNbO₃) based FP etalons have opened new avenues to design excellent tunable narrowband filters. These FP etalons can be made by cutting a wafer parallel to Z or Y axis of LiNbO₃ crystal, two surfaces of which are polished and coated with dielectric material. The refractive index of the crystal can be varied by applying voltage, which serve the purpose of tuning the wavelength. At the Udaipur Solar Observatory, USO, we are using a 60 mm aperture Z-cut LiNbO₃ FP etalon filter, made by the CSIRO, Australia. The free spectral range and finesse of this etalon at 6122 Å is 4.6 Å and 29 respectively, which gives a band pass of 0.15 Å. The filter can be tuned with a sensitivity of 0.57 Å per 1000 volt. This filter is being used at USO to take monochromatic Hz solar observations. The same filter will be used in video magnetograph being built at USO, using 6122 Å line of CaI. Comparing the Hz observations taken through the 0.5 Å passband birefringent filter and those taken through the LiNbO₃ filter, the FP yields about 50% higher transmission through 0.15 Å passband. However, this FP has a smaller field of view (acceptance angle) and the instrumental profile is an Airy function, while the birefringent filter is a Sinc function. This leads to higher continuum leakage in case of FP. We have completed the bench test of the filter and used it at the f/40 beam of the USO Spar telescope in a telecentric arrangement.

Study of Solar Flares Observed in Hard X-ray and Soft X-ray Emissions

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The study of over 400 solar burst data observed by the X-ray polychromator and the hard X-ray bursts spectrometer (aboard SMM satellite) during solar flares is reported here. The study shows that 30% solar flares show hard X-ray (HXR) emissions earlier than the soft X-ray (SXR) emissions, while 70% solar flares show HXR emissions that occur later than the SXR emissions. Since the SXR emissions and the HXR emissions originate at different heights in the solar atmosphere, therefore these events seem to represent two different types of flares. In the first case, the triggering starts from the place of origin of hard X-rays i.e. lower chromosphere or photosphere, while in the other case, the flare triggering starts from the place of origin of soft X-rays i.e. the solar corona. The possible cause for this type of behaviour is also discussed in the paper.

Eruptive Prominence Associated with Limb Flare of 25 January 1991

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We have observed an eruptive prominence on 25 January 1991 which started earlier